

Applicant : Lieping Chen  
Serial No. : 09/451,291  
Filed : November 30, 1999  
Page : 4

Attorney's Docket No.: 07039-187001



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REMARKS

Status of the claims

After entry of the amendments contained herein, claims 1 and 4-52 will be pending and claims 11-13, 36, 37, 45, and 47-52 under consideration in this application, claims 4, 5, and 46 having been allowed, claims 2 and 3 having been cancelled without prejudice, claims 6-10, 14-35, and 38-44 having been withdrawn from consideration for allegedly been drawn to separate inventions, and claim 52 having been added herein. New claim 52 is supported by the specification, e.g., at page 10, lines 21-23.

35 U.S.C. 112, first paragraph, rejections

(a) Claims 1, 11-13, 36-37, and 45-51 stand rejected on the grounds that the specification allegedly does not enable any person skilled in the art to which it pertains, or with which is most nearly connected, to make or use the invention commensurate in scope with the claims.

From the text on page 2, line 14, to page 8, line 2, of the Office Action, Applicant understands the Examiner's position to be that, because of the unpredictable effect of even conservative substitutions on protein structure and function, the instant specification would not enable one skilled in the art to make or use DNAs containing nucleic acid sequences encoding variants of the polypeptides with SEQ ID NOS: 1 or 3 (or functional fragments thereof) but with conservative substitutions. Applicant respectfully disagrees with this position since those skilled in the art are familiar with conservative amino acid substitutions and methods of testing polypeptides having conservative substitutions for co-stimulatory activity. Moreover, the specification provides examples of conservative substitutions (e.g., at page 4, lines 5-8) and methods of testing for co-stimulatory activity (e.g., page 24, lines 10-28, and Examples 3-5). Notwithstanding these considerations, in the interest of expediting prosecution of the instant application, Applicant has deleted the embodiments of amino acid sequences or functional fragments with one or more conservative substitutions from claims 1 and 45, respectively. A typographic error in claim 45 has also been corrected; the word "cells" in line 3 of the claim has

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been changed to "cell." It is clear from the language of the claim that plural form was incorrect.

In light of the above considerations, Applicant respectfully submits that one of skill in the art would not have to perform undue experimentation in order to practice the invention.

(b) Claims 1, 11-13, 36-37, 45, and 47-51 stand rejected as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventor, at the time the application was filed, had possession of the claimed invention.

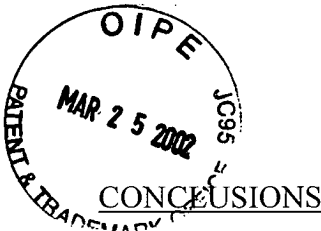
From the comments on page 8, line 8, to page 9, line 13, of the Office Action, Applicant understands the Examiner's position to be that the specification does not provide a description of a sufficient number of "homologs, variants, and mutants" containing one or more conservative substitutions to support the claims. Applicant respectfully submits that this rejection is moot in light of the amendments to claims 1 and 45.

In view of the above considerations, Applicants respectfully request that the rejections under 35 U.S.C. §112, first paragraph, be withdrawn.

Attached is a marked-up version of the changes being made by the current amendment.

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Applicant submits that the pending claims patentably define the invention. Applicant requests that the Examiner reconsider the rejections set forth in the Office Action, and permit the pending claims to pass to allowance.

If the Examiner would like to discuss any of the issues raised in the Office Action, Applicant's undersigned representative can be reached at the telephone number listed below.

Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: \_\_\_\_\_

3/13/02

A handwritten signature in black ink, appearing to read "Stuart Macphail".

Stuart Macphail, Ph.D.  
Reg. No. 44,217

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**Version with markings to show changes made**



**In the claims:**

Claims 1 and 45 have been amended as follows:

1. (Twice amended) An isolated DNA comprising:

- (a) a nucleic acid sequence that encodes a polypeptide with the ability to co-stimulate a T cell, wherein the polypeptide is [(i)] an amino acid sequence consisting of SEQ ID NO:1 or SEQ ID NO:3 [or (ii) the amino acid sequence but with one or more conservative substitutions]; or
- (b) the complement of the nucleic acid sequence.

45. (Amended) An isolated DNA comprising:

- (a) a nucleic acid sequence that encodes a polypeptide with the ability to co-stimulate a T cell[s], wherein the nucleic acid sequence is at least 50 nucleotides long and wherein the polypeptide consists of [(i)] a functional fragment of an amino acid sequence consisting of SEQ ID NO:1 or SEQ ID NO:3 [or (ii) the functional fragment but with one or more conservative substitutions]; or
- (b) the complement of the nucleic acid sequence.

Please add new claim 52.

--52. (Newly added) The DNA of claim 45, wherein the nucleic acid sequence is a segment of a nucleotide sequence consisting of SEQ ID NO:2 or SEQ ID NO:4.--